

Appl. No. 10/629,232
Amdt Dated Feb. 9, 2007
Reply to Office Action December 28, 2006

REMARKS

Claim Objections

It is a typo to cancel claim 11 from the claims. Claim 11 should be kept in the claims list. So, the objection of claim 11 is overcome.

Claim Rejections – 35 USC § 103

Claim 1-6, 11-15 and 17-21 are rejected under 35 U. S. C. 103(a) as obvious over Eyman et al. (US 6639800 B1) in view of Isenburg (US 6741470 B2). Claim 16 is rejected under 35 U. S. C. 103(a) as obvious over Eyman et al. in view of Isenburg, further in view of Lai (US 6381813 B1). Applicant disagrees with the rejections and traverses as follows.

As regards claims 1 and 12, the feature that two pins are positioned in the positioning holes and welded to the printed circuit board is clearly and positively defined. However, neither Eyman reference nor Isenburg reference does disclose such feature. Isenburg reference, in col 8, lines 1-5 thereof, discloses that the lower portion 302b of the locking pin 105 can be threaded to engage threads in each mounting hole 114 of the backing plate 110. Alternatively, the joint between the lower boss 304 and mounting hole 114 of the backing plate 110 can be glued or spot welded. That is to say, Isenburg reference discloses that the locking pin 105 is welded in the mounting hole 114 of the backing plate 110 below the printed circuit board 102, but not in the printed circuit board 102 itself which has an electronic package 120 mounted thereon. Isenburg reference is totally silent regarding the connection between the lower boss 304 and the tooling

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hole 126 in the printed circuit board 102, not to mention that there is no welding connection disclosed in Isenburg. Furthermore, claims 1 and 12 each clearly disclose a rectangular array of pin fins. Isenburg discloses a circular array of pin fins, which when is used to replace the plate-like fins 24 of Eyman et al reference still can not obtain the subject matter of claims 1 and 12 of the present invention. Therefore, Eyman et al reference does not teach the limitations of claims 1, 12 in view of Isenburg reference. As a result, claims 1, 12 are non-obvious to one having ordinary skill in the art at the time the invention was made in view of Eyman et al and Isenburg references. So, claims 1, 12 are patentable under 35 U. S. C. 103(a) over Eyman et al reference in view of Isenburg reference.

Claim 1-6, 11, 17-19 depending on claim 1 directly or indirectly, claims 13-15, 20, 21 depending on claim 12 directly or indirectly, should also be patentable under 35 U. S. C. 103(a) over Eyman et al reference in view of Isenburg reference.

Claim 3 further defines that each of the pins sequentially comprises a blocking portion, a connection portion and a welding portion, each of said portions sequentially having successively reduced diameters. However, Eyman et al reference does not teach that. The locking pin 105, 305 of Isenburg reference does not have such a configuration. So claim 3 should have more patentable weight under 35 U. S. C. 103(a) over Eyman et al reference in view of Isenburg reference.

Claim 4 further restricts that the pressing portion of the clip comprises a pair

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of clamping portions engage with a bottom face of the retention module. However, Eyman et al reference does not teach the limitation, while Eyman discloses the tang 12A, 12B of the clip 10 engaging with the projection 31 of the retainer 30, but not the bottom face of the retainer 30. That is to say, Eyman et al reference does not teach the clamping portions of the clip engaging with the bottom face of the retention module. Isenburg reference does not teach such feature either. So, claim 4 has more patentable weight under 35 U. S. C. 103(a) over Eyman et al reference in view of Isenburg reference.

Claim 6 depending on claim 4 further defines the limitation that the **clamping portions of the clip form distal hooks engagingly clasping the bottom face of the retention module.** However, Eyman et al reference discloses that tangs 12A, 12B located outside the retainer 30 and have the distal ends thereof tilting outwardly away from the retainer 30, which can not engage with the retainer 30. Therefore, claim 6 has more patentable weight under 35 U. S. C. 103(a) over Eyman et al reference in view of Isenburg reference.

Claim 14 restricts that the pins are **integrally formed from or welded to a portion of the retention module** facing the printed circuit board. However, Eyman et al reference does not teach such feature. Isenburg reference, in col, lines 1-4 thereof, discloses the upper portion 302a of the column of the locking pin 105 is smaller in diameter than both bosses 304 and 306, thus **allowing the locking pin 105 to slide within its respective slot 115 on the mounting plate 108 during use.** That is to say, that the locking pin 105 is slideable relative to the mounting plate 108.

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Accordingly, it is not possible for the locking pin to be integrally formed from or welded to the mounting plate 108. Therefore, claim 14 has more patentable under 35 U. S. C. 103(a) over Eyman et al reference in view of Isenburg reference.

Claim 15 further defines that first ends of the pins are welded or inteferentially received in the positioning holes and opposite second ends of the pins are welded to the printed circuit board, which are totally different from the teaching of Isenburg reference; thus claim 15 has more patentable weight under 35 U. S. C. 103(a) over Eyman et al reference in view of Isenburg reference.

With respect to claim 16, claim 16 defines the limitations that the retention module surrounds the electronic package with four projections **diagonally extending outwardly from four corners thereof.** However, Eyman et al reference discloses two projections 31A, 31B **extending upwardly from central portion of the retainer 30,** which does not disclose four projections diagonally extending outwardly from four corners of the retention module. Isenburg reference discloses four slots 115 **in four corners of the mounting plate 108, but not any projection extending outwardly from the mounting plate 108.** Therefore, Isenburg reference does not teach the limitations of the instant claim 16. Lai reference does not teach such feature either. So, claim 16 is patentable under 35 U. S. C. 103(a) over Eyman et al reference in view of Isenburg reference, and further in view of Lai reference. Here Applicant wants to emphasize that heat dissipation technology for electronic device is a crowded art with thousands of patents already published. In such a crowded art, even only a minor

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improvement should be qualified to obtain a protection by patent, thereby encouraging the persons skilled in the art to continue their endeavor in contrivance so that the technology can be advanced. The present invention as claimed in the pending claims has differences from the prior art, and possesses advantages thereover. Thus, the present invention is qualified to deserve a patent protection.

In view of the foregoing, the subject application as claimed in the pending claims is in a condition for allowance and an action to such effect is earnestly solicited.

Respectfully submitted,

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